



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,297	09/10/2003	Gary A. Gibson	200310982-1	5476
22879	7590	11/08/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				BHAT, ADITYA S
		ART UNIT		PAPER NUMBER
				2863

DATE MAILED: 11/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/660,297	GIBSON ET AL.
	Examiner	Art Unit
	Aditya S. Bhat	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 August 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11, 13-20 and 22-24 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10, 13-19 and 22-24 is/are rejected.
- 7) Claim(s) 12 and 21 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 September 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Claim Objections

Claims 12 and 21 are objected to because of the following informalities:
claims 12 and 20 depend on cancelled claims. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 23-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Hong et al. (USPN 2003/0202456).

With regards to claim 23, Hong et al. (USPN 2003/0202456) teaches a computer system comprising: a central processing unit; and a data storage device coupled to the central processing unit comprising: (70;figure 1)

a probe tip mounted on a suspension mechanism; (10&12;figure 1)

a data storage layer; (20;figure 1)

at least one conducting layer wherein a capacitance is formed between the suspension mechanism and the at test one conducting layer; (figure 1) and a sensor for sensing a change in the capacitance based on a displacement of the probe tip due to the presence of a bit. (Page 4, paragraph 0037)

With regards to claim 24, Hong et al. (USPN 2003/0202456) teaches a data storage device comprising:

a probe tip mounted on a flexible suspension mechanism; (10&12;figure 1)
at least one capacitor coupled to the flexible suspension; (Page 4, paragraph 0037) and

a sensor for sensing a change in capacitance of the at least one capacitor based on a displacement of the probe tip due to the presence of a bit (Page 4, paragraph 0037)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 13-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hong et al. (USPN 2003/0202456) in view of Min et al. (USPUB 2003/0210640).

With regards to claim 1, Hong et al. (USPN 2003/0202456) teaches a data storage device comprising:

a probe tip mounted on a suspension mechanism; (10&12;Figure 1)
a data storage layer; (20;figure 1)

at least one conducting layer wherein a capacitance is formed between the suspension mechanism and the at least one conducting layer; (Page 3, paragraph 0030) and

a sensor for sensing a change in the capacitance based on a displacement of the probe tip due to the presence of a bit. (Page 4, paragraph 0037)

With regards to claim 2, Hong et al. (USPN 2003/0202456) teaches the data storage layer is in contact with the probe tip. (Page 3, paragraph 0036)

With regards to claims 3 and 22, Hong et al. (USPN 2003/0202456) teaches the data storage layer includes the bit and the bit comprises at least one of a pit or protrusion (26; figure 3)

With regards to claims 4 and 14, Hong et al. (USPN 2003/0202456) teaches the data storage layer comprises a polymer material. (Page 3, paragraph 0030)

With regards to claims 5 and 15, Hong et al. (USPN 2003/0202456) teaches the conducting layer comprises a conducting thin film. (Page 3, paragraph 0030)

With regards to claims 6 and 16, Hong et al. (USPN 2003/0202456) teaches the conducting thin film comprises at least one of a deposited metal film of Mo, Cu, TA and an alloy. (Page 3, paragraph 0030)

With regards to claims 7 and 17, Hong et al. (USPN 2003/0202456) teaches the conducting layer comprises a conducting substrate (Page 3, paragraph 0030)

With regards to claims 8 and 18, Hong et al. (USPN 2003/0202456) teaches the conducting substrate comprises a doped silicon material. (Page 3, paragraph 0029)

With regards to claim 9, Hong et al. (USPN 2003/0202456) teaches the suspension mechanism includes a flexible cantilever. (Page 3, paragraph 0035)

With regards to claim 10, Hong et al. (USPN 2003/0202456) teaches the capacitance is formed on at least one side of the flexible cantilever. (Page 4, paragraph 0037)

With regards to claim 13, Hong et al. (USPN 2003/0202456) teaches a method of reading data from a data storage device comprising:

suspending a probe tip over a data storage layer via a suspension mechanism; (10&12;Figure 1)

providing at least one conducting layer wherein a capacitance is formed between the suspension mechanism and the at least one conducting layer; (Page 3, paragraph 0030) and

sensing a change in the capacitance based on a displacement of the probe tip due to the presence of a bit. (Page 4, paragraph 0037)

With regards to claim 19, Hong et al. (USPN 2003/0202456) teaches a the suspension mechanism further includes a flexible cantilever and the act of providing at least one conducting layer further comprises providing a conducting layer within the suspension mechanism whereby a capacitance is formed between the conducting layer and the flexible cantilever. (Page 4, paragraph 0037)

Hong et al. (USPN 2003/0202456) does not appear to teach forming a first capacitance is formed on a first side of the suspension mechanism and a second capacitance is formed on a second side of the suspension mechanism.

Min et al. (USPUB 2003/0210640) teaches forming a first capacitance is formed on a first side of the suspension mechanism and a second capacitance is formed on a second side of the suspension mechanism (page 1, paragraph 0011)

It would've been obvious to one of ordinary skill in the art at the time of the invention to modify the Hong invention to form a capacitance on both sides of the cantilever taught by Min in order to improve the linearity, the size and sensitivity of a detection signal. (Page 1, paragraph 0012)

Response to Arguments

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

With regards to the 101 rejection, applicant's amendments/arguments have been found persuasive, therefore the 101 rejection has been withdrawn.

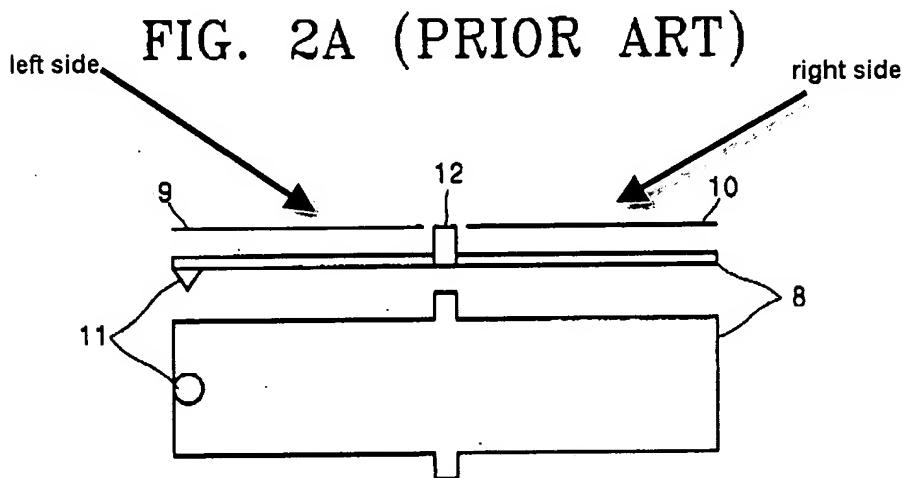
Applicant is reminded that during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

While the meaning of claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allowed. This means that the

words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

In this instance applicant argues that the prior art of record does not teach a first capacitance is formed on a first side of the suspension mechanism and a second capacitance is formed on a second side of the suspension mechanism. Examiner agrees with applicant that the Hong reference does not teach the amended limitation of the claim. However, the Min et al. reference does teach this limitation. (page 1, paragraph 0011) Applicant goes on to argue that Min et al. does not teach forming a first capacitance is formed on a first side of the suspension mechanism and a second capacitance is formed on a second side of the suspension mechanism. (page 1, paragraph 0011) Applicant admittedly states that the Min et al. reference teaches forming a capacitance on a cantilever. However applicant goes on to argue that the capacitance formed on the cantilever as disclosed by Min et al. are formed on the same side of the cantilever. As shown in the underlined portions below the capacitance is formed on the right and left side of the supporter that divides the cantilever into two portions. Since a capacitance is formed on either side of the supporter (either end of cantilever) the claimed invention is believed to read on the Min et al. reference.

[0011] Referring to FIG. 2A, the center of a conventional differential cantilever 8 with a tip 11 is supported by a supporter 12, a cantilever portion on the left side of the supporter 12 forms a capacitor together with an electrode 9, and a cantilever portion on the right side of the supporter 12 forms a capacitor together with an electrode 10. As the conventional differential cantilever 8 is supported at its center by the supporter 12, it records and reproduces data while one end having the tip 11 descends by lifting the other end.



For the aforementioned reasons the rejection has been maintained and is deemed proper.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakai et al. (USPN 5,329,122) teaches a information processing apparatus and scanning tunnel microscope, Kuroda et al. (USPN 5,546,374) teaches a information recording and/or reproducing apparatus and probe, Azuma et al. (USPN 6,477,132) teaches a probe and information recording/reproduction apparatus using the

same, and Takahashi et al (USPN 6,665,239) teaches an optical information recording and reproduction apparatus.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aditya Bhat
November 3, 2006

BRYAN BUI
PRIMARY EXAMINER

